REMARKS

Claims 18, 19 and 36 are currently pending and considered in the application. Claims 1-17, 20-35 and 37-104 claims have been withdrawn. Claim 18 is currently amended. Support for this amendment is found throughout the present application, for example at Paragraphs [0016], [0017], [0019] [0023] and [0052]. By the amendments, applicants do not acquiesce to the propriety of any of the Examiner's rejections and does not disclaim any subject matter to which Applicant is entitled. *Cf. Warner Jenkinson Co. v. Hilton-Davis Chem. Co.*, 41 U.S.P.Q.2d 1865 (U.S. 1997).

I. Claim rejections under 35 U.S.C. § 103

The Examiner makes two rejections under 35 U.S.C. § 103(a). First, claims 18, 19 and 36 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Keith, U.S. Patent No. 4,764,378 ("Keith") in view of Leung, U.S. Patent No. 6,596,298 ("Leung") and Chobanian, U.S. Patent No. 6,139,847 ("Chobanian") or over Leung in view of Keith and Chobanian. OA, page 3. Second, claims 18, 19 and 36 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Keith in view of Hang, U.S. Patent Publication No. 2007/0184093 ("Hang") or over Hang in view of Keith and Chobanian. OA, page 3. Applicant respectfully traverses.

The Examiner first argues that Keith teaches buccal administration of drugs in an erodible matrix with PEG, including drugs treating cardiovascular conditions, but does not teach the use of pollulan as instantly claimed. OA, pages 3-4. The Examiner, however, argues that Leung teaches edible films that include pullulan and that Leung suggests that pullulan and PEG are equivalent and thus it would be obvious to one of ordinary skill in the art to employ the pullulan polymer of Leung in the buccal matrix of Keith. OA, page 4. The Examiner applies similar reasoning for the second rejection, but applying Hang as opposed to Leung. OA, page 5.

To maintain a proper rejection under 35 U.S.C. § 103, the Examiner must meet four conditions to establish a *prima facie* case of obviousness. First, the Examiner must show that the prior art suggested to those of ordinary skill in the art that they should make the claimed composition or device or carry out the claimed process. Second, the Examiner must show that the prior art would have provided one of ordinary skill in the art with a reasonable

expectation of success. Both the suggestion and the reasonable expectation of success must be adequately founded in the prior art and not in an applicant's disclosure. Third, the prior art must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991). Fourth, if an obviousness rejection is based on some combination of prior art references, the Examiner must show a suggestion, teaching, or motivation to combine the prior art references ("the TSM test"). *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). Following *KSR Int'l Co. v. Teleflex, Inc.*, this fourth prong of the *prima facie* obviousness analysis must not be applied in a rigid or formulaic way such that it becomes inconsistent with the more flexible approach of *Graham v. John Deere*, 383 U.S. 1, 17-18 (1966). 127 S. Ct. 1727 (2007). It must still be applied, however, as the TSM test captures the important insight that "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *Id.* at 1741 (citing *United States v. Adams*, 383 U.S. 39, 50-52 (1966)).

Solely in the interest of advancing prosecution, and without agreeing with the propriety of the Examiner's rejection or disclaiming any subject matter to which they are entitled, Applicants have amended claim 18 to state as follows (additions underlined): A consumable film comprising nitroglycerin adapted to dissolve in the mouth of a patient, wherein said film comprises nitroglycerin in a single layer including pullulan and at least one additional pharmaceutical agent, and wherein said consumable film is rapid-dissolving and provides rapid transmucosal delivery of nitroglycerin to a patient. Neither Keith, Leung, Hang nor Chobanian, singly or in any combination, teach or suggest the limitation of a consumable film that is rapid-dissolving and provides rapid transmucosal deliver of nitroglycerin to a patient.

A. Rejections over Keith, in view of Leung, and Chobanian, or over Leung in view of Keith and Chobanian.

The Examiner's first argument relies on the premise that Leung suggests equivalency of PEG and pollulan, whereby the Examiner argues that accordingly "a skilled artisan would be able to substitute PEG of Keith with pullulan of Leung and still expect the same function, i.e, rapid dissolution in the mouth of the consumer so as to release the desired agent rapidly." OA, page 4. Applicants respectfully traverse.

The argument by the Examiner that Leung suggests PEG and pullalan are equivalent is not supported in Leung and therefore fails to provide sufficient basis to establish a *prima*

facie case of obviousness. A reading of Leung clearly shows that it does not teach or suggest the equivalency of PEG and pullulan, and thus Leung does not provide the suggestion or motivation to be combined with Keith. Specifically, Leung relates to "fast dissolving orally consumable films." Col. 1, ll. 8-9. Leung states that "[t]he film of the invention preferably comprises pullulan as a film-forming agent" which can comprise other essential oils and antimicrobial/flavoring agents. Col. 5., ll. 14-16. Further, pullulan is the main ingredient/polymer used in 33 of the 34 of the provided examples of Leung (only example 17 excludes pullulan). Indeed, the only mention of PEG in Leung is not as a main polymer but instead as a minor ingredient in one example, example 22B – this fact alone that Leung recognized PEG but specifically failed to include or even mention it as a main polymer in the Examples establishes the failure of Leung to teach or suggest the equivalency of PEG and pullulan.

Indeed, Leung merely lists PEG, among many other listed polymers, including pullulan, within a Markush group. Compounds being merely listed together in Markush group, however, do not teach or suggest functional equivalency as a matter of law. *In re Ruff*, 256 F.2d 590 (CCPA 1958) (The mere fact that components are claimed as members of a Markush group cannot be relied upon to establish the equivalency of these components.); *see also* MPEP § 2144.06.

Furthermore, even if the Examiner did establish that PEG and pullulan are functionally equivalent, substituting equivalents of the same function or of the same purpose is not a sufficient basis to establish obviousness. *See Smith v. Hayashi*, 209 USPQ 754 (Bd. of Pat. Inter. 1980) (The mere fact that phthalocyanine and selenium function as equivalent photoconductors in the claimed environment was not sufficient to establish that one would have been obvious over the other.); *see also* MPEP § 2144.06. Accordingly, the Examiner has not provided the requisite reasoning to combine the Keith and Leung references, and has thus not provided a combination that teaches or suggests all the limitations as presently claimed.

The Examiner also argues in the alternative that "a skilled artisan would have employed cardiovascular protective agents such as nitroglcycerin and others taught by Keith in the film containing polymers such as pullulan of Leung with an expectation to provide therapeutic or protective effects of Leung with an expectation to provide therapeutic or protective effects for cardiovascular conditions because Leung teaches that any

pharmacological agent and Keith teaches instant claimed nitroglycerin and other cardiovascular agents as suitable medicaments as oral or buccal films." OA, page 4. Keith, however, does not relate to thin films and much less a consumable film that is rapid-dissolving which provides rapid transmucosal delivery of nitroglycerin to a patient, as presently claimed. Keith instead relates to "a buccal drug dosage form," which may be in the form of "disks, wafers, tablets, lozenges, laellae and the like." Col. 2, ll. 37-38. Indeed, Keith relates to a slow dissolving form that provides the administration of a pharmaceutical over a period of 10-30 minutes. Claim 1; *see also* col. 3, ll. 3-7 of the detailed description of the preferred embodiments ("in some cases, it may be desirable for the buccal dosage form to adhere to the oral mucosa, so that it is retained in the oral cavity for a period of time while slowly releasing the active ingredient.") There is no teaching, suggestion or motivation to combine the dosage form of Keith, a slowly dissolving lozenge, with the dosage form of Leung, a dosage form which relates to solving an entirely different problem of providing a non-adhering fast-dissolving edible film.

Furthermore, Keith teaches away from a rapidly-dissolving film as presently-claimed. Prior art must be considered in its entirety, including disclosures that teach away from the claimed invention. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550-51 (Fed. Cir. 1983) (the totality of a reference's teachings must be considered). To 'teach away' means that 'a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference or would be led in a direction divergent from the path that was taken by the applicant.' *Monarch Knitting Machinery Corp. v. Sulzer Morat Gmbh*, 139 F.3d 877, 885 (Fed. Cir. 1998); *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994).

Keith discusses the problems regarding fast dissolving oral dosage forms. Accordingly, Keith states: "a need has continued to exist for a buccal dosage form which adheres to the oral mucosa, provides for administration of medication over a controlled period of time, has a very uniform distribution of the drug in the matrix, and which completely dissolves in the mouth." Keith Col. 2, ll. 11-16.(emphasis added); *see also* Keith's Field of the Invention. Keith therefore relates to solving the problem of a dosage form that is rapidly dissolved (and thus an undesired rapid administration of the drug) by providing a sustained release dosage form that administers the drug over a "controlled period of time." Accordingly because the general proposition or "totality" of Keith completely diverges from the path taken by the applicant and teaches away from the claimed compositions including

consumable films that are rapid-dissolving and which provide rapid transmucosal delivery of nitroglycerin to a patient,. Leung fails to remedy these glaring deficiencies of Keith as it does not teach or suggest the limitation of a consumable film that is rapid-dissolving which provides rapid transmucosal delivery of nitroglycerin to a patient. Chobanian also does make up for this deficiency. Accordingly, Applicants respectfully request that any rejections of pending claims under 35 U.S.C. § 103(a) over Keith, in view of Leung and Chobanian or over Leung in view of Keith and Chobanian be reconsidered and withdrawn.

B. Rejection over Keith in view of Hang and Chobian or over Hang in view of Keith and Chobanian.

The Examiner argues that "[i]t would have been obvious for one of an ordinary skill in the art at the time of the instant invention was made to employ pullulan polymer of Hang in the buccal matrix of Keith because Hang teaches that films made of polymers such as pullulan rapidly dissolve in the mouth, thus delivering the active agent quickly. A skilled artisan would be able to substitute PEG of Keith with pullulan of Hang and still expect the same function, i.e., rapid dissolution in the mouth of the consumer so as to release the desired agent rapidly." OA, page 5. Applicants respectfully traverse.

The Examiner has not provided any citations or support from the teachings of Keith or Hang why one of ordinary skill in the art would expect the same function of pullulan and PEG. Applicant's detailed analysis of the deficiencies of Keith above are incorporated here by reference. Hang also does not teach or suggest the equivalency of PEG and pullulan. Indeed, Hang does not teach or suggest the use of PEG as a dissolving polymer whatsoever. Keith does not teach the use of pullulan. Accordingly, the Examiner has not provided any teaching or suggestion whatsoever for substituting PEG with pullalan based on Keith or Hang and has thus not provided a combination that teaches or suggests all the limitations as presently claimed.

The Examiner also argues in the alternative that "a skilled artisan would have employed cardiovascular protective agents such as nitroglcycerin and others taught by Keith in the film containing polymers such as pullulan of Hang with an expectation to provide therapeutic or protective effects of Leung with an expectation to provide therapeutic or protective effects for cardiovascular conditions because Leung teaches that any pharmacological agent and Keith teaches instant claimed nitroglycerin and other

cardiovascular agents as suitable medicaments as oral or buccal films."[1] OA, page 5.

As discussed above and incorporated herein, Keith does not teach or sugest thin films and much less a consumable film that is rapid-dissolving which provides rapid transmucosal delivery of nitroglycerin to a patient, as claimed. Keith instead relates to "a buccal drug dosage form" which may be in the form of "disks, wafers, tablets, lozenges, laellae and the like." Col. 2, ll. 37-38. Indeed, Keith relates to a slow dissolving form that provides the administration of a pharmaceutical over a period of 10-30 minutes. Claim 1; *see also* col. 3, ll. 3-7 of the detailed description of the preferred embodiments ("in some cases, it may be desirable for the buccal dosage form to adhere to the oral mucosa, so that it is retained in the oral cavity for a period of time while slowly releasing the active ingredient.") There is no suggestion or motivation to combine the dosage form of Keith, a slowly dissolving lozenge, with the dosage form of Leung, a dosage form which relates to solving an entirely different problem of providing a non-adhering fast-dissolving edible film.

Furthermore, Keith teaches away from a fast-dissolving film as provided in Leung and in the presently claimed invention. Prior art must be considered in its entirety, including disclosures that teach away from the claims. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550-51 (Fed. Cir. 1983) (the totality of a reference's teachings must be considered). To 'teach away' means that 'a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference or would be led in a direction divergent from the path that was taken by the applicant.' *Monarch Knitting Machinery Corp. v. Sulzer Morat Gmbh*, 139 F.3d 877, 885 (Fed. Cir. 1998); *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994).

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[1] The Examiner references once to Leung, which Applicants believe is a typo since the Examiner does not reference Leung in this particular obviousness rejection. Applicants are thus interpreting the quote as if the Examiner meant to reference Hang.

Accordingly, because the general proposition or "totality" of Keith diverges from the path taken by the Applicant and teaches away from the claimed compositions including consumable films that are rapid-dissolving and which provide rapid transmucosal delivery of nitroglycerin to a patient, Keith can not be combined with Hang. Hang does not teach or suggest the limitation of a consumable film that is rapid-dissolving which provides rapid transmucosal delivery of nitroglycerin to a patient. Hang, as admitted by the Examiner, "does not teach an embodiment containing nitroglycerin and lacks the combination of nitroglycerin and other cardiovascular agents," and Chobanian does not make up for this deficiency. Applicants respectfully request that any rejections of pending claims under 35 U.S.C. § 103(a) over Keith, in view of Hang, or over Hang in view of Keith and Chobanian be reconsidered and withdrawn.

CONCLUSION

The Applicants have properly and fully addressed each of the Examiner's grounds for rejection. Applicants submit that the present application is now in condition for allowance. If the Examiner has any questions or believes further discussion will aid examination and advance prosecution of the application, a telephone call to the undersigned is invited. If there are any additional fees due in connection with the filing of this amendment, please charge the fees to undersigned's Deposit Account No. 50-1067. If any extensions or fees are not accounted for, such extension is requested and the associated fee should be charged to our deposit account.

Respectfully submitted,

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